IN THE CLAIMS:

1. (Previously presented) A method for comprehensively representing video information in a manner facilitating indexing of the video information, comprising the step of:

segmenting a video stream into a plurality of scenes, each of said scenes comprising at least one video frame;

dividing, using intra-scene motion analysis, at least one of said plurality of scenes into at least one scene foreground layer and a scene background layer;

representing each scene background layer as a mosaic, said background layer mosaic defining a key frame of a respective scene; and

representing each of said at least one video frames forming said scene as a difference between initial video frame imagery and a respective portion of said key frame.

2. (Previously presented) The method of claim 1, further comprising the steps of:

computing, for at least one of said scene foreground and background layers, one or more content-related appearance attributes; and

storing, in a database, said scene content-related appearance attributes or said mosaic representations.

3. (Previously presented) The method of claim 2, further comprising the steps of

storing representations of said plurality of scenes in a mass storage unit; and

retrieving, in response to a database query, scenes associated with content-related appearance attributes defined in said database query.

4. (Previously presented) The method of claim 1, wherein said mosaic representation comprises one of a two dimensional mosaic, a three dimensional mosaic and a network of mosaics.

5. (Previously presented) The method of claim 2, wherein said step of computing a content-based appearance attribute for a layer of a scene comprises the steps of:

generating an image pyramid of said layer;

filtering, using one or more filters associated with said content-based appearance attribute, each subband of said image pyramid to produce respective one or more feature maps associated with each subband; and

integrating said one or more feature maps associated with each respective subband to produce respective attribute pyramid subbands, wherein each of said attribute pyramid subbands comprises a content-based appearance attribute subband associated with a corresponding image pyramid subband.

6. (Original) The method of claim 5, wherein said content-based appearance attribute comprises at least one of a luminance attribute, a chrominance attribute and a texture attribute.

7. (Original) The method of claim 5, wherein said step of filtering further comprises the step of:

rectifying each of said one or more feature maps associated with each subband.

8. (Original) The method of claim 5, further comprising the step of:

collapsing said attribute pyramid subbands to produce a content-based appearance attribute.

9. (Previously presented) The method of claim 2, further comprising the step of:

receiving a request for video information substantially matching a desired content-related appearance attribute; and

retrieving video frames or scenes having at least one layer associated with content-related appearance attributes substantially matching said desired content-related appearance attribute.

10. (Original) The method of claim 9, wherein said step of receiving a request comprises the steps of:

identifying a query type and a query specification, said query type comprising one of a luminance, chrominance and texture query type, said query specification defining a desired property of said identified query type;

selecting a predetermined filter type associated with said identified query type; and

calculating, using said predetermined filter type and said desired property, a desired content-related appearance attribute, said desired content-related appearance attribute being suitable for comparing to said content-related appearance attributes stored in said database.

11. (Original) The method of claim 1, further comprising the steps of:

storing, in a database, ancillary information associated with one or more layers or frames of one or more scenes.

12. (Canceled)

13. (Previously presented) The method of claim 1, wherein said step of segmenting comprises the steps of:

generating a descriptor vector of a predetermined type for each video frame of a video information stream;

calculating a difference between descriptor vectors of successive frames; and

generating a scene cut indicium in response to said calculated difference exceeding a threshold level.

14. (Previously presented) The method of claim 1, wherein said step of segmenting comprises the steps of:

generating, in a first pass, a descriptor vector of a predetermined type for each video frame of a video information stream;

calculating, using said generated descriptor vectors, a descriptor vector threshold level;

calculating, in a second pass, a difference between descriptor vectors of successive frames; and

generating a scene cut indicium in response to said calculated difference exceeding a threshold level.

15. (Canceled)

16. (Canceled)

17. (Currently amended) A method for browsing a video program stored in a mass storage unit, said video program comprising a plurality of scenes, ~~said scenes comprising a plurality of video frames including a key frame comprising a mosaic of an intra-scene background layer,~~ said method comprising the steps of:

providing a database associated with the stored video program, said database comprising attribute information associated with at least a representative portion of said plurality of video frames forming each scene, where said plurality of scenes comprise a plurality of video frames including a key frame comprising a mosaic of an intra-scene background layer;

formulating a query utilizing attribute information associated with a desired video frame;

searching said database to identify video frames substantially satisfying said query; and

retrieving, from said mass storage unit, one or more of said identified video frames.

18. (Original) The method of claim 17, wherein said step of formulating a query comprises the steps of:

selecting a query type;

selecting a query specification; and

computing a multi-dimensional feature vector using said query type and query specification.

19. (Original) The method of claim 18, wherein said query specification is selected by identifying a portion of a displayed image, and said multi-dimensional feature vector is calculated using said query type and said identified potion of said displayed image.

20. (Original) The method of claim 19, further comprising the steps of:

formatting, for subsequent presentation on a display device, each scene including one or more of said identified video frames; and

transmitting said formatted scenes.

21. (Previously presented) A computer-readable medium having stored thereon a plurality of
instructions, the plurality of instructions including instructions which,
when executed by a processor, cause the processor to perform the steps of:

(a) segmenting a video stream into a plurality of [video]scenes, each of said scenes comprising at least one video frame;

(b) dividing, using intra-scene motion analysis, at least one of said plurality of scenes into at least one scene foreground layer and a scene background layer;

representing each scene background layer as a mosaic, said background layer mosaic defining a key frame of a respective scene; and
representing each of said at least one video frames forming said scene as a difference between initial video frame imagery and a respective portion of said key frame.

22. (Previously presented) The computer-readable medium of claim 21, further having stored thereon an additional plurality of instructions, the additional plurality of instructions including instructions which, when executed by a processor, cause the processor to perform the additional steps of:

computing, for at least one of said scene foreground and background layers, one or more content-related appearance attributes; and

storing, in a database, said scene content-related appearance attributes or said mosaic representations.

23. (Previously presented) The computer-readable medium of claim 22, further having stored thereon an additional plurality of instructions, the additional plurality of instructions including instructions which, when executed by a processor, cause the processor to perform the additional steps of:

storing representations of said plurality of scenes in a mass storage unit; and

retrieving, in response to a database query, scenes associated with content-related appearance attributes defined in said database query.

24. (Previously presented) The computer-readable medium of claim 22, wherein said mosaic representation comprises one of a two dimensional mosaic, a three dimensional mosaic and a network of mosaics.

25. (Previously presented) The computer-readable medium of claim 22, wherein the stored instruction of computing a content-based appearance attribute for a layer of a scene, when executed by a processor, cause the processor to perform the steps of:

generating an image pyramid of said layer;

filtering, using one or more filters associated with said content-based appearance attribute, each subband of said image pyramid to produce respective one or more feature maps associated with each subband; and

integrating said one or more feature maps associated with each respective subband to produce respective attribute pyramid subbands, wherein each of said attribute pyramid subbands comprises a content-based appearance attribute subband associated with a corresponding image pyramid subband.

26. (Previously presented) The computer-readable medium of claim 25, wherein said content-based appearance attribute comprises at least one of a luminance attribute, a chrominance attribute and a texture attribute.